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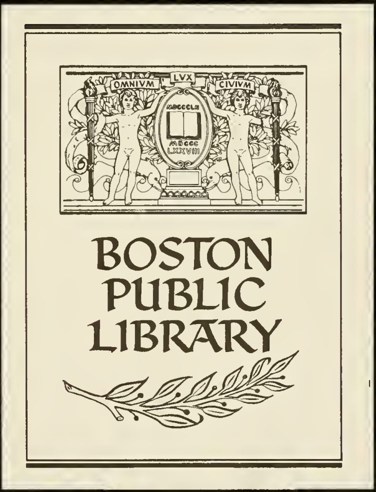

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ATTACHMENT "J"

BRA
1014

III J

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CHAS. T. MAIN INC.

BOSTON
PUBLIC
LIBRARY

rk Plaza
M224
E

c. 1990, with the completion of Park Plaza

B. Chas. T . Main, Inc. is requested to do the following for the three conditions stated above under A.(3).

1. Define the appropriate study area (i.e. potential affected environment), describe the location and condition of the system.

2. State the population for that area (Number and type of users), figures to be furnished by BRA.

3. Convert population data into system demand, or actual use where available.

4. Define system capacity, including any standards or thresholds. Also, recommend mitigating efforts where a conditions of overcapacity exists.

Presentation of information will be as follows:

Definition of study area, and description of system location: 40' scale plan(s) - at least one plan. (For the sanitary sewer system, an 800' scale plan showing connections to the Boston main drainage system including possible points of pollution to the Boston Harbor).

Analysis of system demand and system capacity: tabular and/or narrative format is acceptable.

It is MAIN's understanding that if the BRA furnishes the necessary information for the conditions 1975 and 1990 (without Park Plaza) by February 6, the corresponding work should be completed by February 28.

For the condition 1990 (with Park Plaza) work should be completed by March 7, provided that the BRA provides the necessary information by February 5.

Very truly yours,

CHAS. T. MAIN, INC.

Francis J. Conroy

F. J. Conroy

HN/kab

cc: H. Nover

R. Chrusciel

Frank Conroy 3/75

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Library

QUALIFICATIONS

for

PREPARATION

of

ENVIRONMENTAL IMPACT REPORTS

Submitted to

COMMONWEALTH of MASSACHUSETTS
OFFICE of ENVIRONMENTAL AFFAIRS

February, 1975

MAIN
Engineers

MAIN

AIN
ngineers

CHAS. T. MAIN, INC.
SOUTHEAST TOWER, PRUDENTIAL CENTER, BOSTON, MASSACHUSETTS 02199 • TELEPHONE 617-262-3200

972-65A

February 26, 1975

Ms. Evelyn Murphy, Secretary
Executive Office of Environmental Affairs
Commonwealth of Massachusetts
18 Tremont Street
Boston, Massachusetts

Dear Ms. Murphy:

We would like to continue to be considered by the Commonwealth of Massachusetts for assignments related to the preparation of environmental reports or impact statements.

As you may know, MAIN has in the past worked with the Department of Natural Resources on the development of Massasoit and Wompatuck State Parks and with the Bureau of Building Construction on the development of the Boston campus of the University of Massachusetts.

MAIN offers comprehensive environmental as well as detailed design and construction management services. We enclose for your review one copy of the updated "Consultant Form" originally submitted to your office February 12, 1974. As supplementary information, we also enclose one copy of U. S. Government Architect-Engineer Questionnaire, Standard Form 251, updated to May 22, 1974.

We will very much appreciate an opportunity to discuss the above with you at a mutually convenient time. May we arrange an appointment?

Very truly yours,

CHAS. T. MAIN, INC.

V. M. Kumin

V. M. Kumin

VMK/mcs

cc: L. E. Eknoian
F. R. Davis
W. N. Neil

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
CONSULTANT FORM

r M.G.L. Ch.30, s62 the Secretary of Environmental Affairs is required to approve proposed consultants hired gencies for the preparation of draft or Final Environmental Impact Reports. This background information to be submitted to the Secretary at the time approval is requested. Alternatively, firms and individuals file this form with the Secretary in advance of any such request. If a form with current information is on e, a new form need not be submitted with the request for approval. Please use properly referenced additional ts in filling out this form if necessary.

S: (a) Form may be completed by typewriter or hand printed.
(b) It will be helpful to update the experience record periodically. This may be accomplished by forwarding current data on additional forms.

Name has. T. Main, Inc.	2. Established A. Year 1893 B. State Mass	3. Type of organization (check one) ___ Individual ___ Joint Venture (explain) X Corporation ___ Partnership ___ Other (explain)

Former firm name(s), if any, and year(s) established

ean & MAIN, Engineers	1893-1907
has. T. Main, Engineers	1907-1926

5. Home office business address and telephone no.

Southeast Tower, Prudential Center
Boston, Massachusetts 02199
(617) 262-3200

Present branch office(s)	A. Address	B. Telephone no.	C. Name of person in charge
harlotte, N.C.	Two Fairview Plaza 5950 Fairview Road	(704) 365-1000	Mr. H. Stockwin
enver, Colorado	6630 E. Hampden Ave.	(303) 758-4756	Mr. R. W. Becker
ortland, Oregon	1800 S.W. First Ave.	(503) 221-6200	Mr. F. R. Hamilton

Number of Personnel In Your Present Organization

Located At	a. Principals & Key Personnel*				b. Other Personnel											
	ECOL (1)	ENG (2)	ARCH (3)	OTHER (4)	HYDR (5) Eng.	SOILS (6) Eng.	SANIT (7) Eng.	OTHER (8) Eng.	ECOL (9)	GEOL (10)	AIR (11)	NOISE (12)	BIOL (13)	OTHER (14)	TOTALS (15)
A. Home Office	4**	160	8	20	2	2	12	368	*** 16	4	5	1	2	690	1294
B. Branch Office(s)	-	23	1	5	-	-	7	25	-	-	-	-	1	104	166
C. Totals	4	183	9	25	2	2	19	393	16	4	5	1	3	794	1460

lease attach appropriate firm principal & key personnel vitae as well as appropriate job experience - Attachment "A

*1-Geologist, 1-Hydrologist, 2-Environmental Planners

* 3-Economists, 7-Landscape Architects, 1-Horticulturalist, 1-Urban Planner, 4-Engineers

. Category	Name & address of person or firm
A. Architects	Generally not required since MAIN has own staff. MAIN has worked with many prominent architectural firms.
B. Landscape Architects	Generally not required since MAIN has own staff. MAIN has worked with many prominent landscape architectural firms.
C. Engineers	Generally not required. MAIN's staff includes engineers in most disciplines.
D. Ecologists	Icthyological Associates, - (Dr. Edward C. Raney), 301 Forest Drive, Ithaca, New York 14850
. Soil and Sanitary Engineers	See Attachment "B"
F. Geologists and Hydrogeologists	Generally not required since MAIN has own staff.
G. Biologists	See Attachment "B"
H. Planners	See Attachment "B"
I. Air and Noise Experts	See Attachment "C"
. Writers/Editors	Diana D. Fisher, 313 Marlborough Street, Boston, Mass. 02116
. Other Consultant Affiliation	Surveyors: Harry R. Feldman, Inc., 112 Shawmut Ave., Boston, Mass. 02118

. Indicate the types of projects for which your firm has done environmental impact analysis or assessment reports and statements.

SEE ATTACHMENT "D"

10. Indicate the scope of services provided by your firm without use of outside associates or consultants on types of projects indicated in Item 9

MAIN's staff includes architects, landscape architects and engineers in all disciplines supported by geologists, hydrologists, climatologists, transportation engineers, computer technologists, economists, biologists, planners, systems analysts, and other specialists.

MAIN offers a combination of professional skills and experience for assignments in Environmental Planning, Environmental Design, and Environmental Engineering.

MAIN offers comprehensive environmental services for any or all parts of a project from preliminary reconnaissance through preparation of detailed environmental impact reports, obtaining government approval, detailed design and construction management.

MAIN's qualifications and experience include studies and impact reports relating to:

The Landscape (physical aspects)
Biotic Systems (aquatic and terrestrial)
Usage and Human Interaction (social aspects)
Economics (local and regional)
Resource Analysis (natural and manmade)
Feasibility

and coordination of field studies relating to:

Archaeology
History
Wildlife
Aquatic Life
Biology
Agriculture
Water Quality
Air Quality

MAIN's skills include:

Economists
Biologists
Geologists
Hydrologists
Transportation Designers
Landscape Architects
Urban Planners
Regional Planners
Architects
Engineers (in all disciplines
Systems Analysts
Computer Programmers
Climatologists
Park and Recreation Facility Designers

11. As of this date: (month, day, year) the foregoing is a true statement of fact.

February 26, 1975

Name of firm or individual submitting questionnaire

Chas. T. Main, Inc.

Type name and title of person signing

William N. Neil

William N. Neil, Vice President

ATTACHMENT "A"

RESUMES

Chas. T. Main, Inc.

AIR QUALITY/NOISE
ARCHITECTURE
COMPUTER SERVICES
ELECTRIC POWER GENERATION AND TRANSMISSION
ENVIRONMENTAL SERVICES
GEOLOGY – SOIL MECHANICS
URBAN SERVICES
WATER RESOURCES – HYDROLOGY

AIR QUALITY/NOISE

	Education	Experience
George S. Bing-You	University of Maine Bachelor of Science – Mechanical Engineering	Senior Design Engineer, Industrial Division; design of A.E.C. and research laboratory projects, air cleaning equipment, and total energy plants.
S. Robert Conviser	Harvard University Master of Science – Mechanical Engineering Northeastern University Bachelor of Science Mechanical Engineering	Senior Engineer; ventilating systems including control of radioactively polluted air, noise control for a linear accelerator.
Edgar A. Craig	Massachusetts Institute of Technology Advanced Studies in Heating, Ventilating, and Air Conditioning Northeastern University Bachelor of Science – Mechanical Engineering	Design of systems to handle fume exhaust and temperature and humidity control, design of complete building service systems.
Eliot N. Eames	Northeastern University Bachelor of Science – Mechanical Engineering	Design of air pollution control and/or abatement systems.
John H. Jacobs	Northeastern University Advanced Studies in Industrial Hygiene, Air Resources Management, and Air Pollution Control Norwich University Bachelor of Science – Mechanical Engineering	Design Engineer; design of "clean rooms" for electronics manufacturing, ventilating systems for chemical plants; projects involving noise reduction and sound control in television stations.
Percy L. Nelson	Massachusetts Institute of Technology Bachelor of Science – Electrical Engineering Williams College Bachelor of Arts – Physics and Mathematics	Design of sulfite recovery boilers and evaporator installations.

ARCHITECTURE

	Education	Experience
Jerzy L. Gardulski	Cracow Academy (Poland) Master in Architecture	Apartment and office buildings, shops, restaurants, recreation facilities, large scale housing; formerly Assistant Professor of Architecture, Polytecnic Institute, Cracow.
John K. Mason	Yale University Bachelor of Fine Arts – Architecture	Design of public service buildings, nursing homes, laboratories, industrial plants; interior design.
Joseph S. Walker	University of Colorado Bachelor of Science – Architecture	Senior Architect, Graphic Arts Division; design of newspaper, magazine and book printing plants, radio and TV facilities.

COMPUTER SERVICES

	Education	Experience
Mark Alimansky	Harvard University Master of Business Administration Massachusetts Institute of Technology Bachelor of Science -- Electrical Engineering	Systems analysis, marketing studies, socio-economic impact reports, long-range business forecasts, computer modeling and systems simulation.
Howard I. Broad	Western New England College Master of Business Administration Georgia Institute of Technology Bachelor of Science -- Industrial Management	Manager of Data Processing; analysis and development of computer systems for forecasting and control.
Dr. Nadipuram R. Prasad	Massachusetts Institute of Technology Doctor of Science – Electrical Engineering Vanderbilt University Master of Science – Electrical Engineering National Institute of Engineering (India)	Control systems engineering; development of mathematical models for economic, environmental protection, and engineering problems.
Gladys E. Sturtevant	Harvard University University of Wisconsin Advances Studies Franklin Technical College	System analyst/programmer.

ELECTRIC POWER GENERATION AND TRANSMISSION

	Education	Experience
Ronald R. Budreika	Vytautas the Great University Bachelor of Science – Civil Engineering	Structural design of hydroelectric plants, transmission lines, tunnels, roads; formerly Senior Structural Engineer - Lithuania, and Hydroelectric Plant Superintendent - Austria.
Richard E. Burnett	University of Colorado Bachelor of Science – Electrical Engineering	Design of electric power projects, studies of water supply and uses, utility development studies.
Richard S. Coleman	Tufts University Bachelor of Science – Electrical Engineering	Senior Electrical Engineer, Hydroelectric Projects; pumped storage and hydroelectric plants in New York State (Blenheim-Gilboa, Niagara River, St. Lawrence), Massachusetts (Bear Swamp), Turkey.
John D. Goodrich	Northeastern University Master of Science Structural Engineering, Bachelor of Science – Civil Engineering	Structural engineering, power use studies, hydroelectric and nuclear power plants – New York, North Carolina, Connecticut.
Fred H. Hartz	Duke University Bachelor of Science – Mechanical Engineering.	Design of equipment for large power plants.

ENVIRONMENTAL SERVICES

	Education	Experience
W. M. Bakowski	Cornell University A.B. - Life Sciences	Site planning and design - Recreation, electric power, industrial facilities
M.M. Brandeegee, Jr.	University of Washington Architecture Erie County Technical Institute Construction Technology	Site design - Recreation, electric power, industrial facilities
F.L. Brown	Boston University Graduate Economics University of Vermont B.S. - Civil Engineering	Environmental impact studies - Electric power plants, transmission lines
R.G. Burbidge	University of Virginia PhD. - Marine Science Michigan State University M.S. - Zoology Kalamazoo College B.A. - Biology	Aquatic biology, limnology, marine hydrography - Developing countries, electric power, industrial facilities
D.S. Conover	University of Massachusetts A.B. - Environmental Design	Landscape design - Recreation, electric power, industrial facilities
J.W. Conover	Ohio State University B.S. - Landscape Architecture E. Tennessee State University B.S. - Business Administration	Project coordination, site planning and design, construction management, environmental impact studies - Recreation areas, power plants, transmission lines
F.R. Davis	Northeastern University M.S. - Environmental Engineering Tufts University B.S. - Civil Engineering	Environmental studies, site planning and design, waste treatment - Recreation, electric power, industrial facilities
H.B. Engley	Boston Museum of Fine Arts Landscape Design	Landscape and horticultural design - Park and recreation areas
R.R. Fraser	University of Massachusetts B.S. - Landscape Architecture	Site planning and design, construction management - Electrical power and industrial facilities
J.S. Greer	Massachusetts Institute of Technology B.S. - Civil Engineering/ Economics	Economic and electric power demand forecasting, computer modeling, environmental impact studies

ENVIRONMENTAL SERVICES (Cont.)

	Education	Experience
D.L. Hand	Northeastern University B.S. - Civil Engineering	Site design - Recreation areas, electric power, industrial facilities
V.M. Kumin	Harvard University Loeb Fellow - Environmental Studies A.B. - Chemistry Boston University M.A. - Urban Affairs Northeastern University Graduate Chemical Engineering	Environmental impact studies, chemical process design - Electric power and industrial facilities
A.W. Metwally	University of Wisconsin PhD. - Botany University of Cairo, Egypt B.S. - Agriculture	Environmental resource and urbanization analysis, environmental impact studies, computer modeling, site and routing studies - Dams, power transmission lines, industrial facilities
J.M. Perkins	Boston University B.A. - Business Administration	Economic analysis, computer modeling, demand forecasting, regional analysis, economic feasibility studies
D.F. Perry	University of Massachusetts B.S. - Landscape Architecture	Environmental studies, site planning and design - Recreation areas, electric power facilities
L.E. Phillips	University of Illinois B.A. - Landscape Architecture B.S. - Horticulture	Site selection studies, site planning and design, environmental studies - Urban and regional parks, electric power, industrial facilities
J. Pietras	Syracuse University B.S. - Resources Management	Forestry, fire protection, vegetative analysis - National forests, power transmission lines
A.C. Pollari	Harvard University M.A. - Landscape Architecture Michigan State University B.S. - Landscape Architecture	Planning and design - Park and recreation areas, parkways, schools
E.C. Sheahan	University of New Hampshire B.S. - Civil Engineering	Surveys, site design, construction management - Recreation areas, electric power, industrial facilities
J.M. Strub	Syracuse University B.S. - Resources Management	Forestry, fire protection, vegetative analysis - National forests, power transmission lines

ENVIRONMENTAL SERVICES (Cont.)

	Education	Experience
R.W. Vernstrom	Stanford University B.A. - History	Regional economic and environmental studies, computer modeling
J.C. Wehner	Harvard University M.A. - City Planning Stanford University B.A. - English	Urban, community and regional planning, economic development analyses

GEOLOGY – SOIL MECHANICS

	Education	Experience
Charles P. Benziger	University of Tennessee Bachelor of Science – Geology	Geological and soils investigations for hydroelectric plants and water transmission tunnels.
Robert A. Caughey	Texas Western College Bachelor of Science – Geology	Geological investigations for hydroelectric developments, dams, and water supply systems.
Alton P. Davis, Jr.	Northeastern University Master of Science and Bachelor of Science – Civil Engineering	Site and soils studies for hydroelectric plants and airfields.
Malcolm J. Edmonds	University of New Hampshire Bachelor of Science – Geology	Geological and soils investigations for hydroelectric plants: foundation design for structures in U.S., and in Greenland for Perma-Frost conditions.
Jon Jonas	Harvard University Research Fellow in Soil Mechanics Technical University of Prague Diploma in Engineering	Site investigations for dams, bridges, roadways, power plants, apartment houses: foundation design, formerly Research Fellow in Soil Mechanics, Harvard University.
Lee Marc G. Wolman	Harvard University Master of Science – Civil Engineering John Hopkins University Bachelor of Arts – Civil Engineering	Planning and design of dams, spillways; hydroelectric plants, sewerage and process water piping.

URBAN SERVICES

	Education	Experience
Willard L. Baker, Jr.	Tufts University Bachelor of Science – Civil Engineering	Roads, sewerage, water supply systems; sewage treatment facilities.
William D. Bell, Jr.	Northeastern University Bachelor of Business Administration Engineering and Management Lincoln Institute Associate in Electrical Engineering	Design of electrical systems for both industrial and institutional projects.
Richard U. Bryant	Massachusetts Institute of Technology Master of Science – Mechanical Engineering Bachelor of Science -- Mechanical Engineering	Design, operation, and maintenance of mechanical equipment for major industrial buildings.
David F. Carpenter	Harvard University Master of Science – Sanitary Engineering University of Kansas Bachelor of Science – Civil Engineering	Senior Engineer, Industrial Division; site planning, water supply, waste treatment, building mechanical services, urban renewal.
Raymond J. Ceriani	Northeastern University Associate in Engineering, Bachelor of Science - Industrial Technology	Senior Engineer, Structural Group; design of structural systems, rehabilitation of existing buildings.
James G. Chandler	Northeastern University Bachelor of Science – Civil Engineering	Specifications and scheduling, design of underground utilities.
Francis J. Conroy	Northeastern University Associate in Civil Engineering, Bachelor of Arts - Engineering Management	Design of roads, sewer and water systems, site planning structural engineering, rehabilitation of existing buildings.
J. Paul Dyer	Northeastern University	Solid wastes removal and disposal.

	Education	Experience
George C. Krusen	Taft Sanitary Engineering Center – Advanced Study Cornell University Master of Science – Chemical Engineering Massachusetts Institute of Technology Bachelor of Science – Chemical Engineering Practice	Industrial waste treatment, water purification.
William W. Lundgren	Northeastern University Bachelor of Science – Civil Engineering	Survey reports, design, construction for municipal, state, federal projects, sewerage, water supply, incinerators, highways, foundations.
Bryan F. Lynch	Northeastern University Advanced Studies in Sanitary Engineering Bachelor of Science – Civil Engineering Wentworth Institute Associate of Science – Civil Engineering	Environmental engineering, waste water treatment.
Arthur J. Mooney	Tufts University Bachelor of Science – Civil Engineering	Senior Civil Engineer: site development, sanitary sewerage, waste treatment, storm drainage, water treatment and distribution.
Leo G. Sweeney	Tufts University Studies in Chemistry Naval Studies at Colgate and the University of North Carolina	Site preparation, roads docks, railroad spurs, industrial plants; formerly with New Hampshire Department of Public Works.
John J. Walsh, Jr.	Northeastern University Bachelor of Science – Civil Engineering	Water supply and treatment, municipal sewerage, sanitary waste disposal.

WATER RESOURCES – HYDROLOGY

	Education	Experience
Llewellyn L. Cross, Jr.	Tufts University Bachelor of Science – Civil Engineering	Hydrology; stream precipitation and other meteorological investigations.
George Geil	Pennsylvania State University Advanced Study in Structures Johns Hopkins University Graduate Study in Hydrology Ohio State University Bachelor of Science – Civil Engineering	Irrigation and water conservation studies.
Garith K. Grinnell	Northeastern University Bachelor of Science – Civil Engineering	Earth and concrete structures design, tidal studies of Hudson River, bridge design.
Lance E. Robson	State University of New York at Buffalo Master of Science –	Network analyses, design studies for water distribution system; computer program design for hydraulic analysis.
Mircea S. Vasilescu	Institute of Construction, Bucharest Diploma in Civil Engineering	Land planning, design for large hydraulic projects and drainage basins.

ATTACHMENT "B"

E. Soil and Sanitary Engineers:

Generally not required since MAIN has own staff.
MAIN has worked with:

Mueser-Rutledge-Wentworth-Johnson
415 Madison Avenue
New York, New York 10017

Haley & Aldrich
238 Main Street
Cambridge, Mass. 02138

Camp, Dresser & McKee
1 Center Plaza
Boston, Mass.

G. Biologists:

Icthyological Associates (Dr. Edward C. Raney)
301 Forest Drive
Ithaca, New York 14850

Jason Cortell Associates
194 Worcester Street
Wellesley, Mass. 02181

H. Planners:

Dr. Melvin R. Levin, Chairman
Dept. of Urban Planning & Policy Development
Livingston College
Rutgers University
New Brunswick, New Jersey 08901

Dr. Francois Vigier, Professor
Department of City and Regional Planning
Graduate School of Design
Harvard University
Cambridge, Mass. 02138

CLM Systems, Inc. (Transportation)
292 Main Street
Cambridge, Mass. 02142

CHAS. T. MAIN, INC.
SOUTHEAST TOWER, PRUDENTIAL CENTER, BOSTON, MASSACHUSETTS 02199 • TELEPHONE 617-262-3200

ATTACHMENT "C"

I. Air and Noise Experts:

Air:

Walden Research Corp.
359 Allston Street
Cambridge, Mass. 02138

EG & G, Environmental Equipment Division
151 Bear Hill Road
Waltham, Mass. 02154

Environmental Research and Technology, Inc.
696 Virginia Road
Concord, Mass. 01742

Noise:

Cambridge Acoustical Associates, Inc.
1033 Massachusetts Avenue
Cambridge, Mass. 02138

Bolt, Beranek & Newman, Inc.
50 Moulton Street
Cambridge, Mass. 02138

ATTACHMENT "D"

ENVIRONMENTAL IMPACT STUDIES

MAIN offers technical services for preparing environmental impact reports to comply with federal or state regulations and provide expert testimony. MAIN has performed environmental impact studies under guidelines to conform with the National Environment Policy Act (NEPA) for:

- two large pumped storage power projects
- more than 20 high voltage transmission line projects involving over 1600 miles of right-of-way

The pumped storage power projects involved 3,000 and 6,000 acre sites in New York State and Nebraska respectively. The comprehensive environmental studies covered probable physical, economic and sociological impacts. Skills applied included engineering, landscape architecture, archaeology, history, aquatic and terrestrial biology, sociology, economics, geology, hydrology, water quality and ecology.

MAIN has also completed environmental studies under both state and federal regulations for a 900 ton per day pulp mill on an 800 acre site along the Kennebec River in Maine. Plans were prepared for waste water discharge control, air emission control, soil erosion control, siltation and drainage control, together with site preparation, site restoration and fire protection plans.

Clients for whom MAIN has prepared environmental impact studies or reports include:

- Appalachian Power Company
- Baltimore Gas & Electric Company
- Carolina Power and Light Company
- Great Northern Paper Company
- Montana Power Company
- N.E. Power Company
- Nebraska Public Power District
- Niagara Mohawk Power Corporation
- Pennsylvania Power & Light Company
- Power Authority of the State of New York
- Public Service Company of New Hampshire
- Scott Paper Company
- Vermont Electric Power Company

ENVIRONMENTAL PROJECT EXPERIENCE

Resource Analysis

Regional Economic Planning and Forecasts

Site Selection Studies

Environmental Impact Studies

Master Plans

Site Planning

Pollution Control

for:

Electric Utilities

Pulp and Paper Industry

Printing Industry

Chemical Process Companies

Park and Recreation Agencies

International Development Agencies

Public Agencies and Authorities

MAIN's environmental service staff of economists, landscape architects, civil engineers, botanists, biologists, foresters, and urban and regional planners has completed national and regional economic analyses, land use and master plans for parks and recreation areas, site selection studies and comprehensive environmental impact studies. MAIN is also well qualified to prepare detailed land use plans and site designs for institutional, industrial, utility and recreational facilities.

MAIN's overall staff includes engineers in all disciplines and architects -- supported by geologists, hydrologists, climatologists, transportation engineers, computer scientists, and other specialists.

ENVIRONMENTAL SERVICES

Chas. T. Main, Inc., a professional engineering firm with a staff of more than 1600, offers environmental services either separately or as part of overall project design to industry, institutions, and government agencies throughout the world.

MAIN offers comprehensive services in environmental fields for any or all parts of a project from preliminary reconnaissance through preparation of detailed environmental impact reports, license or permit applications, detailed design, and construction management:

- Engineering (land, air, water)
- Terrestial and Aquatic Biology
- Geology and Soils Science
- Hydrology
- Meteorology
- Socioeconomics
- Computerized Data Storage and Analysis
- Aerial Photo Interpretation and Analysis

for

Long Term Planning

- Regional Studies
- Economic Studies
- Resource Analysis
- Land Use and Master Planning

Land Planning and Design

- Utilities
- Industrial
- Commercial
- Institutions
- Governmental
- Transportation
- Recreation

Statutes and Regulations

- Environmental Impact Studies
- Licensing and Permits
- Pollution Control

On some projects MAIN works with well known outside specialists qualified to provide services in related areas.

ECOLOGICAL STUDIES

MAIN offers professional services to perform ecological assessments of terrestrial and aquatic systems, evaluate project related environmental impacts, and to recommend appropriate management procedures.

Terrestrial

- Vegetation Surveys
  - Wooded communities
  - Shrub communities
  - Herbaceous communities

- Vegetation Analyses
  - Community delineation
  - Species composition
  - Relative density
  - Relative frequency
  - Relative dominance
  - Importance values
  - Volume analysis

- Biological Surveys
  - Entomology
  - Herpetology
  - Avifauna
  - Mammalogy

- Biological Analyses
  - Species composition
  - Habitat
  - Population density
  - Carrying capacity
  - Distribution and movement
  - Life history

- Population Dynamics
  - Intra- and inter- specific competition
  - Succession
  - Species diversity

- Wildlife Studies
  - Habitat mapping
  - Game hunter census
  - Game harvest

Aquatic

- Surveys
  - Phytoplankton
  - Vascular plants
  - Zooplankton
  - Benthos
  - Periphyton
  - Fish

- Population Dynamics
  - Intra- and inter- specific competition
  - Species diversity
  - Trophic relationships

- Analyses
  - Distribution and movement
  - Seasonal fluctuations
  - Substrate
  - Life history
  - Dominant species
  - Habitat

PHYSICAL ENVIRONMENT STUDIES

MAIN offers professional services to perform studies of the physical environment and to make evaluations of potential environmental impacts.

Geology

- Topography and physiography
- Geologic structure: faults, anticlines, shears
- Stratigraphy
- Seismicity
- Rock Condition
- Geologic phenomena: earthquakes, landslides
- Mineral resource inventories

Hydrology

- Physical and chemical characteristics of surface and ground water: chemical and thermal pollution: thermal stratification; sediment transport
- Flood frequency and routing analyses, computation of Probable Maximum Flood and Standard Project Flood. determination and appraisal of downstream flood effects; flood control
- Aquifer and aquifer recharge areas
- Drainage and run-off analysis
- Prediction of evaporation and evapotranspiration losses
- Water use studies: identification of water sources and consumptive uses; potential basin yields. irrigation development

Meteorology

- Climatology: precipitation, temperature, dew point, wind speed and direction, glaze and lightning occurrences, fogging. hurricanes, historic climatic patterns
- Micrometeorologic effects
- Ambient air and noise quality monitoring
- Atmospheric dispersion studies

Soils

- Soil analyses: chemical, physical
- Erosion potential and slope stability
- Soil capability analyses

SOCIOECONOMIC STUDIES

MAIN's socioeconomic staff includes economists, and urban and regional planners well qualified to perform socioeconomic impact analyses. Working with MAIN's natural scientists and engineers as an interdisciplinary team, these specialists have completed a number of studies for large industrial or electric power facilities and regional planning programs. Recent projects include a socioeconomic impact analysis for a large pumped storage power plant in New York State and regional economic analyses in several developing countries.

MAIN's approach to socioeconomic impact studies for proposed projects includes:

- Analysis of project setting
- Area land use analysis
- Population statistics review
- Economic base statistics analysis
- Identification of relevant local, state and federal government policies and plans
- Determinations of probable short and long term impacts on the local and regional areas generated by expected land use changes, project construction and project operation
- Comparison of the probable net costs and benefits of the project to the local and regional area

ECONOMIC PLANNING AND ANALYSES

MAIN provides professional services to perform economic studies for individual facilities, comprehensive system development or regional planning. The staff includes economists, mathematicians, systems analysts, and computer programmers. Project qualifications include forecasting and marketing studies, socio-economic impact analyses, allocation planning, feasibility studies, and analyses of action alternatives. MAIN operates an in-house data processing center containing an IBM 370/135 computer system and General Electric Mark III time sharing facilities.

Project experience has involved studies to:

- determine probable socio-economic impact of a planned facility
- compare resource allocation alternatives with environmental and social or economic objectives
- forecast demand for energy, goods and services, recreational facilities
- determine probable patterns of change for population, per capita income, consumption, and facility use
- forecast local, regional or national economic trends

Methodologies applied include modern computer model adaptations of Markov chain processes, input-output analyses, and classical micro-economic approaches. MAIN has developed and tested several computer programs for quantifying relationships between economic growth, resource usage and environmental impacts:

- a land use model for quantifying economic, environmental, and physiographic impacts of a project
- a model based on Markov method modification which utilizes econometrics, input-output analyses, and stochastic processes

COMPUTERIZED ENVIRONMENTAL DATA COLLECTION
AND
COMPARATIVE IMPACT ANALYSES

MAIN offers computerized processes which can store large quantities of environmental data, record numerical values which reflect the environmental significance of different factors, and compare impacts.

LUMTRAN/TRIDOGRAM

LUMTRAN accepts environmental site data and produces a matrix of numerical values for rating alternative sites. TRIDOGRAM produces a graphic presentation of the numerical results of LUMTRAN.

These programs analyze environmental impacts for transmission line routing and industrial site selection alternatives. Values considered include terrain, geology, soils, vegetation, wildlife, scenic aspects, accessibility, socio-economics and land use restrictions as applied to residential, agricultural, commercial, industrial and other land use categories.

EDAP

MAIN offers a comprehensive computerized system known as Environmental Decision Alignment Process (EDAP) to isolate, evaluate and store information systematically about specific natural and cultural characteristics of an area. EDAP involves a multidisciplinary approach which considers the viewpoints of resource experts, clients, and public interest representatives.

The EDAP system includes an optimization program which selects the best route according to any specified criteria for linear facilities such as highways or transmission lines. Local impact and sensitivity analysis programs are used to help assess potential environmental impacts for each alternative.

The EDAP method can rapidly and accurately organize the quantitative data needed to select an environmentally acceptable industrial site. EDAP incorporates information on the natural characteristics of any region as well as the major concerns of its inhabitants. It is capable of combining the client's concern for economy, reliability and safety with the public's concern for social, economic and environmental impact.

AERIAL PHOTO INTERPRETATION AND ANALYSIS

MAIN offers aerial photographic interpretation and photogrammetric engineering services based on black and white, color, color infrared, thermal infrared scanning, and multispectral photography.

Urban Land Use

- Institutional facilities
- Residential development
- Industrial facilities
- Recreation
- Communication systems
- Transportation patterns

Physiography

- Drainage patterns
- Landforms
- Topography

Agriculture

- Farming patterns
- Crop acreages
- Orchards and vineyards
- Livestock
- Erosion patterns
- Soil moisture
- Growth quality
- Seasonal changes

Extractive Features

- Sand and gravel pits
- Surface mines
- Underground mines

Wetlands

- High water table areas
- Swamps
- Seasonal flooded basins
- Bogs
- Marshlands
- Open water

Hydrology

- Water pollution patterns
- Surface temperature patterns
- Reservoir fluctuations

Vegetation

- Non-forest plant communities
- Forest-cover types
- Tree height
- Tree crown density and diameter
- Forest quality and volume

Wildlife

- Open range counts
- Thermal infrared detection

CHAS. T. MAIN, INC.

RECENT ENVIRONMENTAL IMPACT STUDIES

Project	Location	Year Completed	Client
Environmental Report Boyd County Pumped Storage Project	Boyd County Nebraska	—	Nebraska Public Power District
Environmental Impact Report - Canal Zone Portion - La Fortuna Project - 23 km - 230 kV Transmission Line	Canal Zone Panama	1974	Instituto de Recursos Hibraulicos Electrificacion
Environmental Study 17 miles 500 kV Transmission Line	Calvert County, Maryland	1974	Baltimore Gas and Electric Company
Environmental Report 33 miles 765 kV Transmission Line	Mason and Cabell County West Virginia	1974	Appalachian Power Company
Environmental Report 8 miles 230 kV 155 miles 765 kV Transmission Line	New York	1974	Power Authority of the State of New York
Environmental Report 71 miles 230 kV Transmission Line	New York	1974	Power Authority of the State of New York

Project	Location	Year Completed	Client
Environmental Study Site Location Application 900 ton per day Pulp Mill	Hinckley, Maine	1973	Scott Paper Company Philadelphia, Pa.
Environmental Impact Report on 40 miles of 345 kV transmission line.	Lafayette, New York	1973	Niagara Mohawk Power Corp. Syracuse, New York
Environmental Impact Report on 160 miles of 765 kV transmission line.	Marcy, New York	1973	Power Authority of the State of New York, New York, N.Y.
Site preservation, restoration, erosion control, aesthetics portions of the environmental report on the Susquehanna Steam Electric Station	Berwick, Pennsylvania	1973	Pennsylvania Power & Light Co. Allentown, Pennsylvania
Environmental Study Fiber Bleach Plant	Griswoldville, Mass.	1973	The Kendall Company Walpole, Mass.
Environmental Impact Report for the Breakabeen Pumped Storage Power Project	Breakabeen, New York	1973	Power Authority of the State of New York, New York, N.Y.
Environmental Impact Report on 72 miles of 345 kV and 65 miles of 765 kV transmission lines. Expert witness testimony.	Oswego, New York	1972	Niagara Mohawk Power Corp. Syracuse, New York

Project	Location	Year Completed	Client
Environmental Impact Report and Feasibility Report on underground 345 kV transmission lines.	Oswego, New York	1972	Niagara Mohawk Power Corp. Syracuse, New York
Environmental Impact and Feasibility Report on underground 345 kV transmission lines.	Portsmouth, N. H.	1972	Public Service Co. of New Hampshire Manchester, New Hampshire
Environmental Review and expert witness testimony for 35 miles of 765 kV transmission line.	Lynchburg, Virginia	1972	Appalachian Power Co. Roanoke, Virginia
Environmental Report on 175 miles of 230 kV transmission line.	Billings, Montana	1972	Montana Power Co. Billings, Montana
Environmental evaluation of 26 miles of 345 kV transmission line.	Newington-Deerfield New Hampshire	1972	Public Service Co. of New Hampshire Manchester, New Hampshire
Environmental Impact Report on overhead and underground transmission on 30 miles of 345 kV transmission lines.	Gilboa-Leeds, New York	1971	Power Authority of the State of New York, New York, N.Y.
Environmental Impact Report for 70 miles of 345 kV transmission line.	Oswego and Oneida New York	1971	Power Authority of the State of New York, New York, N.Y.
Environmental Report for Bear Swamp Pumped Storage Power Project.	Monroe and Florida, Massachusetts	1971	New England Power Co. Westboro, Massachusetts

Project	Location	Year Completed	Client
Environmental Report on 120 miles of 345 kV transmission lines.	Southport, North Carolina	1971	Carolina Power & Light Co. Raleigh, North Carolina.
Environmental Report on 90 miles of 345 kV transmission lines.	Leeds, New York	1970	Power Authority of the State of New York, New York, N.Y.
Environmental studies and expert witness testimony on 80 miles of of 230 and 345 kV transmission lines and 2 crossings.	Vernon, Vermont	1970	Vermont Electric Power Co. Rutland, Vermont

MAIN

Property Of
BOSTON REDEVELOPMENT AUTHORITY
Library

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MAIN

QUALIFICATIONS

ENVIRONMENTAL SERVICES

Chas. T. Main, Inc., a professional engineering firm with a staff of more than 1600, offers environmental services either separately or as part of overall project design to industry, institutions, and government agencies throughout the world.

MAIN offers comprehensive services in environmental fields for any or all parts of a project from preliminary reconnaissance through preparation of detailed environmental impact reports, license or permit applications, detailed design, and construction management:

- Engineering (land, air, water)
- Terrestial and Aquatic Biology
- Geology and Soils Science
- Hydrology
- Meteorology
- Socioeconomics
- Computerized Data Storage and Analysis
- Aerial Photo Interpretation and Analysis

for

Long Term Planning
- Regional Studies
- Economic Studies
- Resource Analysis
- Land Use and Master Planning

Land Planning and Design
- Utilities
- Industrial
- Commercial
- Institutions
- Governmental
- Transportation
- Recreation

Statutes and Regulations
- Environmental Impact Studies
- Licensing and Permits
- Pollution Control

On some projects MAIN works with well known outside specialists qualified to provide services in related areas.

ENVIRONMENTAL PROJECT EXPERIENCE

Resource Analysis

Regional Economic Planning and Forecasts

Site Selection Studies

Environmental Impact Studies

Master Plans

Site Planning

Pollution Control

for:

Electric Utilities

Pulp and Paper Industry

Printing Industry

Chemical Process Companies

Park and Recreation Agencies

International Development Agencies

Public Agencies and Authorities

MAIN's environmental service staff of economists, landscape architects, civil engineers, botanists, biologists, foresters, and urban and regional planners has completed national and regional economic analyses, land use and master plans for parks and recreation areas, site selection studies and comprehensive environmental impact studies. MAIN is also well qualified to prepare detailed land use plans and site designs for institutional, industrial, utility and recreational facilities.

MAIN's overall staff includes engineers in all disciplines and architects – supported by geologists, hydrologists, climatologists, transportation engineers, computer scientists, and other specialists.

ENVIRONMENTAL IMPACT STUDIES

MAIN offers technical services for preparing environmental impact reports to comply with federal or state regulations and provide expert testimony. MAIN has performed environmental impact studies under guidelines to conform with the National Environment Policy Act (NEPA) for:

- two large pumped storage power projects
- more than 20 high voltage transmission line projects involving over 1600 miles of right-of-way

The pumped storage power projects involved 3,000 and 6,000 acre sites in New York State and Nebraska respectively. The comprehensive environmental studies covered probable physical, economic and sociological impacts. Skills applied included engineering, landscape architecture, archaeology, history, aquatic and terrestrial biology, sociology, economics, geology, hydrology, water quality and ecology.

MAIN has also completed environmental studies under both state and federal regulations for a 900 ton per day pulp mill on an 800 acre site along the Kennebec River in Maine. Plans were prepared for waste water discharge control, air emission control, soil erosion control, siltation and drainage control, together with site preparation, site restoration and fire protection plans.

Clients for whom MAIN has prepared environmental impact studies or reports include:

- Appalachian Power Company
- Baltimore Gas & Electric Company
- Carolina Power and Light Company
- Great Northern Paper Company
- Montana Power Company
- N.E. Power Company
- Nebraska Public Power District
- Niagara Mohawk Power Corporation
- Pennsylvania Power & Light Company
- Power Authority of the State of New York
- Public Service Company of New Hampshire
- Scott Paper Company
- Vermont Electric Power Company

CHAS. T. MAIN, INC.

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PHYSICAL ENVIRONMENT STUDIES

MAIN offers professional services to perform studies of the physical environment and to make evaluations of potential environmental impacts.

Geology

- Topography and physiography
- Geologic structure: faults, anticlines, shears
- Stratigraphy
- Seismicity
- Rock Condition
- Geologic phenomena: earthquakes, landslides
- Mineral resource inventories

Hydrology

- Physical and chemical characteristics of surface and ground water; chemical and thermal pollution; thermal stratification; sediment transport
- Flood frequency and routing analyses, computation of Probable Maximum Flood and Standard Project Flood, determination and appraisal of downstream flood effects; flood control
- Aquifer and aquifer recharge areas
- Drainage and run-off analysis
- Prediction of evaporation and evapotranspiration losses
- Water use studies: identification of water sources and consumptive uses; potential basin yields, irrigation development

Meteorology

- Climatology: precipitation, temperature, dew point, wind speed and direction, glaze and lightning occurrences, fogging, hurricanes, historic climatic patterns
- Micrometeorologic effects
- Ambient air and noise quality monitoring
- Atmospheric dispersion studies

Soils

- Soil analyses: chemical, physical
- Erosion potential and slope stability
- Soil capability analyses

ECOLOGICAL STUDIES

MAIN offers professional services to perform ecological assessments of terrestrial and aquatic systems, evaluate project related environmental impacts, and to recommend appropriate management procedures.

Terrestrial

- Vegetation Surveys
  - Wooded communities
  - Shrub communities
  - Herbaceous communities

- Vegetation Analyses
  - Community delineation
  - Species composition
  - Relative density
  - Relative frequency
  - Relative dominance
  - Importance values
  - Volume analysis

- Biological Surveys
  - Entomology
  - Herpetology
  - Avifauna
  - Mammalogy

- Biological Analyses
  - Species composition
  - Habitat
  - Population density
  - Carrying capacity
  - Distribution and movement
  - Life history

- Population Dynamics
  - Intra- and inter- specific competition
  - Succession
  - Species diversity

- Wildlife Studies
  - Habitat mapping
  - Game hunter census
  - Game harvest

Aquatic

- Surveys
  - Phytoplankton
  - Vascular plants
  - Zooplankton
  - Benthos
  - Periphyton
  - Fish

- Population Dynamics
  - Intra- and inter- specific competition
  - Species diversity
  - Trophic relationships

- Analyses
  - Distribution and movement
  - Seasonal fluctuations
  - Substrate
  - Life history
  - Dominant species
  - Habitat

SOCIOECONOMIC STUDIES

MAIN's socioeconomic staff includes economists, and urban and regional planners well qualified to perform socioeconomic impact analyses. Working with MAIN's natural scientists and engineers as an interdisciplinary team, these specialists have completed a number of studies for large industrial or electric power facilities and regional planning programs. Recent projects include a socioeconomic impact analysis for a large pumped storage power plant in New York State and regional economic analyses in several developing countries.

MAIN's approach to socioeconomic impact studies for proposed projects includes:

- Analysis of project setting
- Area land use analysis
- Population statistics review
- Economic base statistics analysis
- Identification of relevant local, state and federal government policies and plans
- Determinations of probable short and long term impacts on the local and regional areas generated by expected land use changes, project construction and project operation
- Comparison of the probable net costs and benefits of the project to the local and regional area

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- Institutional facilities
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- Marshlands
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- Surface temperature patterns
- Reservoir fluctuations

Vegetation

- Non-forest plant communities
- Forest-cover types
- Tree height
- Tree crown density and diameter
- Forest quality and volume

Wildlife

- Open range counts
- Thermal infrared detection

COMPUTERIZED ENVIRONMENTAL DATA COLLECTION
AND
COMPARATIVE IMPACT ANALYSES

MAIN offers computerized processes which can store large quantities of environmental data, record numerical values which reflect the environmental significance of different factors, and compare impacts.

LUMTRAN/TRIDOGRAM

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ECONOMIC PLANNING AND ANALYSES

MAIN provides professional services to perform economic studies for individual facilities, comprehensive system development or regional planning. The staff includes economists, mathematicians, systems analysts, and computer programmers. Project qualifications include forecasting and marketing studies, socio-economic impact analyses, allocation planning, feasibility studies, and analyses of action alternatives. MAIN operates an in-house data processing center containing an IBM 370/135 computer system and General Electric Mark III time sharing facilities.

Project experience has involved studies to:

- determine probable socio-economic impact of a planned facility
- compare resource allocation alternatives with environmental and social or economic objectives
- forecast demand for energy, goods and services, recreational facilities
- determine probable patterns of change for population, per capita income, consumption, and facility use
- forecast local, regional or national economic trends

Methodologies applied include modern computer model adaptations of Markov chain processes, input-output analyses, and classical micro-economic approaches. MAIN has developed and tested several computer programs for quantifying relationships between economic growth, resource usage and environmental impacts:

- a land use model for quantifying economic, environmental, and physiographic impacts of a project
- a model based on Markov method modification which utilizes econometrics, input-output analyses, and stochastic processes

CHAS. T. MAIN INTERNATIONAL, INC.
RECENT ECONOMIC PLANNING ASSIGNMENTS

COUNTRY	CLIENT	DATE	STATION, LINE OR AREA	ASSIGNMENT
Columbia	IDB	1974	Alto Sino Hydro System	Economic Development Analysis, Electric Power Demand Forecasts and Training Program for Economic and Load Forecasters
Indonesia	Asian Development Bank, IBRD (World Bank), AID	1972	Electric Power Systems West Java, Central Java Sulawesi	Economic Development Analyses & Electric Power Demand Forecasts
		1974		Economic Development Analysis & Energy Demand Forecasts for Interconnection of Jakarta, West Java & Central Java Systems
Iran	Imperial Government of Iran	1973	Persian Gulf Region	Economic Development Analysis & Electric Power Demand Forecast
		1974	Caspian Sea Area	Energy Demand Forecasts
Kuwait	Government of Kuwait	1972	Kuwait	Economic Development Analysis & Electric Power Demand Forecasts
Liberia	AID	1972	Republic of Liberia	Economic Development Analysis & Electric Power Demand Forecasts
Panama	IRHE	1972	Panama	Economic Development Analysis & Electric Power Demand Forecasts
		1974	La Fortuna Hydro 25 mi. 230 kV	Environmental Impact Report for Canal Zone Portion
		1975	Panama	Revision of Economic Projections Affecting Electric Demand
Saudi Arabia	Riyadh Electric Company	1975	Riyadh, Saudi Arabia	Electric Power Demand Forecast

Abbreviations:
AID – U.S. Agency for International Development
IBRD – International Bank for Reconstruction & Development
IDB – Inter-American Development Bank
IHRE – Instituto de Recursos Hidraulicos y Electrificacion

SITE LOCATION STUDIES

MAIN offers professional services to identify and evaluate potential site locations for power plants or industrial facilities and to make comparative site analyses. To insure an accurate interpretation of relevant data, MAIN employs an interdisciplinary investigation of major criteria:

- engineering
- economic
- environmental

Engineering criteria include site specific data on key facility requirements relating to use of air, water and land; economic criteria include comparisons of site related construction and operating costs; environmental criteria concern aquatic and terrestial biology aspects as well as potential impacts on the human environment, and probable responses of public agencies having permit granting authority, the local population and regional or national interest groups.

MAIN's staff resources applicable to site location studies include:

- aerial photography and interpretation
- photogrammetric engineering
- civil engineering
- aquatic and terrestrial biology
- geology
- soils
- hydrology
- urban and regional planning
- economics
- meterorology
- resource analysis
- landscape architecture

Although overlay techniques are usually sufficient for most studies, MAIN is also well equipped to employ computerized data logging and interpretation techniques and has several tested computer programs available for this purpose.

Recent projects completed include alternative site comparisons for a pumped storage power plant in New York State for the Power Authority of the State of New York and a comparative evaluation of 27 potential sites in northern Maine for a 1200 ton per day pulp mill for Great Northern Paper Company.

PARK AND RECREATION AREAS
PLANNING AND DESIGN SERVICES

MAIN offers comprehensive planning and design services for developing any type or size park and recreation area. Planning services include economic studies, natural and manmade resource analyses, master plans, budget estimates and implementation schedules. MAIN offers complete engineering, architectural and landscape architectural design services required for all facilities and supporting utilities. Construction management services are also available.

Professional master planning is a key element for every park or recreation area project. Any recreation program plan developed must reflect the physical capabilities of the site to sustain high quality activities. The master plan and report provides a long term guide for a phased development program as well as documentation and data for project authorization requests, budget preparation and federal funding applications.

Professional design of the recreation facilities structures, site improvements and utilities will provide not only initial savings during construction but also long term savings on maintenance and operation.

In recent years MAIN has planned, designed or provided construction management services for more than 50 park and recreation facilities. Project size has varied from small neighborhood parks to 20,000 acre state parks.

Projects constructed include a wide variety of facilities:

- ponds and lakes
- beaches
- marinas
- swimming pools
- golf courses
- camping areas
- cabin areas
- bath houses
- vistor centers
- amphitheaters
- playgrounds
- roads and parking areas

and all service systems required for water supply, electricity, sewage treatment, maintenance, and park management.

PARK AND RECREATION AREAS
PROJECT EXPERIENCE

CLIENT	PROJECT
Cities	
Lowell, Massachusetts	Eight Urban Parks
Norwood, Massachusetts	Edean Park
Counties	
Mecklenburg County, North Carolina	Mecklenburg Park
Niagara County, New York	Six County Parks
States	
Delaware	Brandywine Creek State Park Cape Henlopen State Park Delaware Seashore State Park Lums Pond State Park Murderkiln State Park White Clay State Park
Massachusetts	Massasoit State Park Paradise Pond State Park Wompatuck State Park
New Hampshire	Crawford Notch State Park Echo Lake State Park
New Jersey	Washington Crossing State Park
New York	Hudson Highlands State Park
North Carolina	Duke Power Recreation Area
Rhode Island	Colt State Park
Utilities	
Boston Edison Company	Pilgrim Nuclear Station Recreation Area
Consolidated Edison Company of New York	Cornwall Pumped Storage Recreation Area
Jersey Central Power & Light Company	Yards Creek Recreation Area
New England Power Service Company	Bear Swamp Pumped Storage Visitors Center
Northeast Utilities	Northfield Mountain Pumped Storage Recreation Area Turner Falls Recreation Area
Pennsylvania Power & Light Company	Susquehanna Nuclear Station Recreation Area
Philadelphia Electric Company	Muddy Run Recreation Area Conowingo Reservoir and Tower
Power Authority of the State of New York	Mine Kill State Park Schoharie Valley Recreation Area St. Lawrence Power Recreation Area
Public Service Company of New Hampshire	Berlin Recreation Area

LANDSCAPE PLANNING AND DESIGN
SITE ANALYSIS

MAIN offers complete landscape planning and design services including site analysis and planning services for industrial, public utility, commercial, institutional, and public facilities. MAIN's staff of landscape architects, resource analysts, horticulturists, and civil engineers works as a team to provide a reasonable economic balance between aesthetics and function.

For each project, MAIN employs a sequence of planning and design criteria which apply to topographic features, soils, drainage, vegetation, meteorologic and social conditions. The client's objectives guide the analysis and design processes, the preparation of an optimum development plan, and the preparation of construction drawings and specifications.

Project experience has included:

- phased development plans
- site planning
- planting plans
- landscape restoration plans
- grading plans
- drainage plans
- lighting plans
- parking plans
- roadway design

MAIN's landscape architects and horticulturists bring to every project expert knowledge of plants, shrubs and trees, environmental concerns and landscaping techniques. For the larger construction projects, skills in preservation and restoration of the landscape are of growing importance. MAIN's landscape planning and design staff has had extensive project experience on a wide variety of large engineering and architectural programs for industrial, power and institutional clients.

LANDSCAPE PLANNING AND DESIGN
ILLUSTRATIVE PROJECT EXPERIENCE

CLIENT	PROJECT
UTILITIES	
Boston Edison Company	Pilgrim Nuclear Station – Plymouth, Mass.
Duke Power Company	Substation – Greensboro, N.C.
New England Power Company	Bear Swamp Pumped Storage Station Visitor Center – Florida, Mass. Substation – Quincy, Mass.
Northern States Power Company	Gas Turbine Station – Chippewa Falls, Wisc.
Power Authority of the State of New York	Blenheim-Gilboa Pumped Storage Station – Schoharie County, N.Y.
INDUSTRIAL	
Boston Envelope Company	Industrial Plant – Canton, Mass.
Cramer Electronics Company	Office/Warehouse – Newton, Mass.
Erie Times	Newspaper Plant – Erie, Pa.
General Electric Company	Industrial Plant – Merrimack, N.H.
Kimberly Clark Company	Industrial Plant – Beech Island, S.C.
Middlesex News	Newspaper Plant – Perth Amboy, N.J.
Teledyne Corporation	Industrial Plant – Dedham, Mass.
Sandoz-Warner Company	Industrial Plant – Charlotte, N.C.
INSTITUTIONAL	
Commonwealth of Massachusetts	University of Massachusetts Campus – Boston, Mass.

RESUMES

Chas. T. Main, Inc.

AIR QUALITY/NOISE
ARCHITECTURE
COMPUTER SERVICES
ELECTRIC POWER GENERATION AND TRANSMISSION
ENVIRONMENTAL SERVICES
GEOLOGY – SOIL MECHANICS
URBAN SERVICES
WATER RESOURCES – HYDROLOGY

AIR QUALITY/NOISE

	Education	Experience
George S. Bing-You	University of Maine Bachelor of Science – Mechanical Engineering	Senior Design Engineer, Industrial Division; design of A.E.C. and research laboratory projects, air cleaning equipment, and total energy plants.
S. Robert Conviser	Harvard University Master of Science – Mechanical Engineering Northeastern University Bachelor of Science Mechanical Engineering	Senior Engineer; ventilating systems including control of radioactively polluted air,noise control for a linear accelerator.
Edgar A. Craig	Massachusetts Institute of Technology Advanced Studies in Heating, Ventilating, and Air Conditioning Northeastern University Bachelor of Science – Mechanical Engineering	Design of systems to handle fume exhaust and temperature and humidity control,design of complete building service systems.
Eliot N. Eames	Northeastern University Bachelor of Science – Mechanical Engineering	Design of air pollution control and/or abatement systems.
John H. Jacobs	Northeastern University Advanced Studies in Industrial Hygiene, Air Resources Management, and Air Pollution Control Norwich University Bachelor of Science – Mechanical Engineering	Design Engineer; design of "clean rooms" for electronics manufacturing, ventilating systems for chemical plants; projects involving noise reduction and sound control in television stations.
Percy L. Nelson	Massachusetts Institute of Technology Bachelor of Science – Electrical Engineering Williams College Bachelor of Arts – Physics and Mathematics	Design of sulfite recovery boilers and evaporator installations.

ARCHITECTURE

	Education	Experience
Jiri K. Eckert	Czech Institute of Technology Master in Architecture	Design of Medical Facilities, radio, T.V., Office, Public and industrial buildings, urban renewal projects.
Robert C. Harding	University of Virginia Bachelor of Science – Architecture	Design of schools, churches. residences, recreation facilities, pulp and paper facilities.
John K. Mason	Yale University Bachelor of Fine Arts – Architecture	Design of public service buildings, nursing homes, laboratories, industrial plants; interior design.
Joseph S. Walker	University of Colorado Bachelor of Science – Architecture	Senior Architect, Graphic Arts Division; design of newspaper, magazine and book printing plants, radio and TV facilities.

COMPUTER SERVICES

	Education	Experience
Mark Alimansky	Harvard University Master of Business Administration Massachusetts Institute of Technology Bachelor of Science – Electrical Engineering	Systems analysis, marketing studies, socio-economic impact reports, long-range business forecasts, computer modeling and systems simulation.
Howard I. Broad	Western New England College Master of Business Administration Georgia Institute of Technology Bachelor of Science – Industrial Management	Manager of Data Processing; analysis and development of computer systems for forecasting and control.
Dr. Nadipuram R. Prasad	Massachusetts Institute of Technology Doctor of Science – Electrical Engineering Vanderbilt University Master of Science – Electrical Engineering National Institute of Engineering (India)	Control systems engineering; development of mathematical models for economic, environmental protection, and engineering problems.
Gladys E. Sturtevant	Harvard University University of Wisconsin Advances Studies Franklin Technical College	System analyst/programmer.

ELECTRIC POWER GENERATION AND TRANSMISSION

	Education	Experience
Ronald R. Budreika	Vytautas the Great University Bachelor of Science – Civil Engineering	Structural design of hydroelectric plants, transmission lines, tunnels, roads; formerly Senior Structural Engineer - Lithunia, and Hydroelectric Plant Superintendent - Austria.
Richard E. Burnett	University of Colorado Bachelor of Science – Electrical Engineering	Design of electric power projects, studies of water supply and uses, utility development studies.
Richard S. Coleman	Tufts University Bachelor of Science – Electrical Engineering	Senior Electrical Engineer, Hydroelectric Projects; pumped storage and hydroelectric plants in New York State (Blenheim-Gilboa, Niagara River, St. Lawrence), Massachusetts (Bear Swamp), Turkey.
John D. Goodrich	Northeastern University Master of Science Structural Engineering, Bachelor of Science – Civil Engineering	Structural engineering, power use studies, hydroelectric and nuclear power plants – New York, North Carolina, Connecticut.
Fred H. Hartz	Duke University Bachelor of Science – Mechanical Engineering.	Design of equipment for large power plants.

ENVIRONMENTAL SERVICES

	Education	Experience
W. M. Bakowski	Cornell University A.B. - Life Sciences	Site planning and design - Recreation, electric power, industrial facilities
M.M. Brandeegee, Jr.	University of Washington Architecture Erie County Technical Institute Construction Technology	Site design - Recreation, electric power, industrial facilities
F.L. Brown	Boston University Graduate Economics University of Vermont B.S. - Civil Engineering	Environmental impact studies - Electric power plants, transmission lines
R.G. Burbidge	University of Virginia PhD. - Marine Science Michigan State University M.S. - Zoology Kalamazoo College B.A. - Biology	Aquatic biology, limnology, marine hydrography - Developing countries, electric power, industrial facilities
D.S. Conover	University of Massachusetts A.B. - Environmental Design	Landscape design - Recreation, electric power, industrial facilities
J.W. Conover	Ohio State University B.S. - Landscape Architecture E. Tennessee State University B.S. - Business Administration	Project coordination, site planning and design, construction management, environmental impact studies - Recreation areas, power plants, transmission lines
F.R. Davis	Northeastern University M.S. - Environmental Engineering Tufts University B.S. - Civil Engineering	Environmental studies, site planning and design, waste treatment - Recreation, electric power, industrial facilities
H.B. Engley	Boston Museum of Fine Arts Landscape Design	Landscape and horticultural design - Park and recreation areas
R.R. Fraser	University of Massachusetts B.S. - Landscape Architecture	Site planning and design, construction management - Electrical power and industrial facilities
J.S. Greer	Massachusetts Institute of Technology B.S. - Civil Engineering/ Economics	Economic and electric power demand forecasting, computer modeling, environmental impact studies
D.L. Hand	Northeastern University B.S. - Civil Engineering	Site design - Recreation areas, electric power, industrial facilities

ENVIRONMENTAL SERVICES (Cont.)

	Education	Experience
V.M. Kumin	Harvard University Loeb Fellow - Environmental Studies A.B. - Chemistry Boston University M.A. - Urban Affairs Northeastern University Graduate Chemical Engineering	Environmental impact studies, chemical process design - Electric power and industrial facilities
A.W. Metwally	University of Wisconsin PhD. - Botany University of Cairo, Egypt B.S. - Agriculture	Environmental resource and urbanization analysis, environmental impact studies, computer modeling, site and routing studies - Dams, power transmission lines, industrial facilities
J.M. Perkins	Boston University B.A. - Business Administration	Economic analysis, computer modeling, demand forecasting, regional analysis, economic feasibility studies
D.F. Perry	University of Massachusetts B.S. - Landscape Architecture	Environmental studies, site planning and design - Recreation areas, electric power facilities
L.E. Phillips	University of Illinois B.A. - Landscape Architecture B.S. - Horticulture	Site selection studies, site planning and design, environmental studies - Urban and regional parks, electric power, industrial facilities
J. Pietras	Syracuse University B.S. - Resources Management	Forestry, fire protection, vegetative analysis - National forests, power transmission lines
A.C. Pollari	Harvard University M.A. - Landscape Architecture Michigan State University B.S. - Landscape Architecture	Planning and design - Park and recreation areas, parkways, schools
E.C. Sheahan	University of New Hampshire B.S. - Civil Engineering	Surveys, site design, construction management - Recreation areas, electric power, industrial facilities
J.M. Strub	Syracuse University B.S. - Resources Management	Forestry, fire protection, vegetative analysis - National forests, power transmission lines
R.W. Vernstrom	Stanford University B.A. - History	Regional economic and environmental studies, computer modeling
J.C. Wehner	Harvard University M.A. - City Planning Stanford University B.A. - English	Urban, community and regional planning, economic development analyses

GEOLOGY – SOIL MECHANICS

	Education	Experience
Charles P. Benziger	University of Tennessee Bachelor of Science – Geology	Geological and soils investigations for hydroelectric plants and water transmission tunnels.
Robert A. Caughey	Texas Western College Bachelor of Science – Geology	Geological investigations for hydroelectric developments, dams, and water supply systems.
Alton P. Davis, Jr.	Northeastern University Master of Science and Bachelor of Science – Civil Engineering	Site and soils studies for hydroelectric plants and airfields.
Malcolm J. Edmonds	University of New Hampshire Bachelor of Science – Geology	Geological and soils investigations for hydroelectric plants; foundation design for structures in U.S., and in Greenland for Perma-Frost conditions.
Jon Jonas	Harvard University Research Fellow in Soil Mechanics Technical University of Prague Diploma in Engineering	Site investigations for dams, bridges, roadways, power plants, apartment houses; foundation design, formerly Research Fellow in Soil Mechanics, Harvard University.
Lee Marc G. Wolman	Harvard University Master of Science – Civil Engineering John Hopkins University Bachelor of Arts – Civil Engineering	Planning and design of dams, spillways; hydroelectric plants, sewerage and process water piping.

URBAN SERVICES

	Education	Experience
Willard L. Baker, Jr.	Tufts University Bachelor of Science – Civil Engineering	Roads, sewerage, water supply systems; sewage treatment facilities.
William D. Bell, Jr.	Northeastern University Bachelor of Business Administration Engineering and Management Lincoln Institute Associate in Electrical Engineering	Design of electrical systems for both industrial and institutional projects.
Richard U. Bryant	Massachusetts Institute of Technology Master of Science – Mechanical Engineering Bachelor of Science – Mechanical Engineering	Design, operation, and maintenance of mechanical equipment for major industrial buildings.
David F. Carpenter	Harvard University Master of Science – Sanitary Engineering University of Kansas Bachelor of Science – Civil Engineering	Senior Engineer, Industrial Division; site planning, water supply, waste treatment, building mechanical services, urban renewal.
Raymond J. Ceriani	Northeastern University Associate in Engineering, Bachelor of Science – Industrial Technology	Senior Engineer, Structural Group; design of structural systems, rehabilitation of existing buildings.
James G. Chandler	Northeastern University Bachelor of Science – Civil Engineering	Specifications and scheduling, design of underground utilities.
Francis J. Conroy	Northeastern University Associate in Civil Engineering, Bachelor of Arts - Engineering Management	Design of roads, sewer and water systems, site planning structural engineering, rehabilitation of existing buildings.
J. Paul Dyer	Northeastern University	Solid wastes removal and disposal.

	Education	Experience
George C. Krusen	Taft Sanitary Engineering Center – Advanced Study Cornell University Master of Science – Chemical Engineering Massachusetts Institute of Technology Bachelor of Science – Chemical Engineering Practice	Industrial waste treatment, water purification.
William W. Lundgren	Northeastern University Bachelor of Science – Civil Engineering	Survey reports, design, construction for municipal, state, federal projects; sewerage, water supply, incinerators, highways, foundations.
Bryan F. Lynch	Northeastern University Advanced Studies in Sanitary Engineering Bachelor of Science – Civil Engineering Wentworth Institute Associate of Science – Civil Engineering	Environmental engineering, waste water treatment.
Arthur J. Mooney	Tufts University Bachelor of Science – Civil Engineering	Senior Civil Engineer; site development, sanitary sewerage, waste treatment, storm drainage, water treatment and distribution.
Leo G. Sweeney	Tufts University Studies in Chemistry Naval Studies at Colgate and the University of North Carolina	Site preparation, roads docks, railroad spurs, industrial plants; formerly with New Hampshire Department of Public Works.
John J. Walsh, Jr.	Northeastern University Bachelor of Science – Civil Engineering	Water supply and treatment, municipal sewerage, sanitary waste disposal.

WATER RESOURCES – HYDROLOGY

	Education	Experience
Llewellyn L. Cross, Jr.	Tufts University Bachelor of Science – Civil Engineering	Hydrology; stream precipitation and other meteorological investigations.
George Geil	Pennsylvania State University Advanced Study in Structures Johns Hopkins University Graduate Study in Hydrology Ohio State University Bachelor of Science – Civil Engineering	Irrigation and water conservation studies.
Garith K. Grinnell	Northeastern University Bachelor of Science – Civil Engineering	Earth and concrete structures design, tidal studies of Hudson River, bridge design.
Lance E. Robson	State University of New York at Buffalo Master of Science –	Network analyses, design studies for water distribution system; computer program design for hydraulic analysis.
Mircea S. Vasilescu	Institute of Construction, Bucharest Diploma in Civil Engineering	Land planning, design for large hydraulic projects and drainage basins.

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